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March 10, 2014

Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, S.W.  
Washington, DC 20554

Re: Erratum to Expression of Interest Filed on Behalf of Mediacom Communications Corporation and Deere & Company; WC Docket No. 10-90

Dear Ms. Dortch:

Enclosed please find a corrected version of an Expression of Interest filed on behalf of Mediacom Communications Corporation and Deere & Company. The original version of the filing, submitted to the Commission on Friday, March 7, 2014, inadvertently omitted exhibits which are being attached hereto in the corrected version.

The corrected Expression of Interest also clarifies the expected sources of non-Connect America Fund investment for the proposed experiment.

Please contact the undersigned should you have any questions regarding this filing.

Respectfully submitted,



Edward A. Yorkgitis, Jr.

*Counsel to Mediacom Communications Corporation*

enclosure

March 7, 2014  
(corrected March 10, 2014)

**VIA ECFS**

Ms. Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 12th Street, S.W.  
Washington, DC 20554

**Re: Expression of Interest –WC Docket No. 10-90**

Dear Mrs. Dortch:

Mediacom Communications Corporation (“Mediacom”) and Deere & Company (“John Deere”) hereby respectfully submit an expression of interest in response to the invitation of the Federal Communications Commission (“FCC”) in its January 31, 2014, Order, Report and Order and Further Notice of Proposed Rulemaking, and Proposal for Ongoing Data Initiative (“Order”) in the above referenced dockets.

**Background**

Mediacom is the nation’s eighth largest cable television company and one of the leading cable operators focused on serving the smaller cities and towns in rural communities in the United States, with significant customer concentrations in the Midwestern and Southeastern regions. Mediacom is the leading provider of broadband services in Iowa. Mediacom offers a wide array of information, communications and entertainment services, including video, high-speed Internet, data and phone, and provides innovative broadband communications solutions through its Mediacom Business division that can be tailored to any size business. Mediacom has deployed over 600,000 strand miles of carrier grade fiber backbone in its operating territory, which has supported, among other things, backhaul for over 1000 commercial mobile radio service (“CMRS”) cell sites, many of which are in rural Iowa. Mediacom, directly and through its industry association partners, has been an active participant in the Commission’s Connect America Fund proceedings.

John Deere, founded in 1837 and based in Moline, Illinois, is one of the largest manufacturers of agricultural machinery in the world. John Deere agricultural products include tractors, combine harvesters, cotton harvesters, balers, planters/seeder, sprayers, and utility task vehicles (“UTVs”), among others. As a world leader in providing advanced farming, products and services, John Deere is committed to the success of customers whose work is linked to the land, specifically those who cultivate, harvest, transform, enrich and build upon the land to meet the world’s dramatically increasing need for food, fuel, shelter and infrastructure. John Deere’s agricultural products integrate advanced communications solutions that support precision farming, which increases yield, optimizes cost efficiency, and allows smarter use of land, water, and other resources. These products rely on robust GPS availability, unlicensed and licensed wireless communications, and broadband connections.

**Scope of Proposed Experiment**

As the leading provider of broadband communications in Iowa, Mediacom is well aware of the many ways in which Iowans are able to utilize broadband communications, where it is

available, to improve their lives and the productivity of their businesses and anchor institutions. Mediacom, with its extensive fiber footprint that goes beyond its traditional retail cable franchise footprint to include backhaul fiber through many rural areas to serve macro cell sites of CMRS providers, is well situated to leverage and extend its existing fiber facilities and to partner with others to help bring innovative broadband communications solutions to rural Iowa.

John Deere has worked extensively with farmers in Iowa and numerous other agricultural states to utilize data gathering through a variety of sensing products, wireless communications, and increasingly smart agricultural vehicles and tools to maximize farm output and improve cost efficiency even through difficult seasonal conditions and weather events. John Deere also is well aware that farming has become an increasingly global enterprise with increased market volatility and that farms experience increased pressure to take advantage of all methods available to improve production and profitability while preserving the soil and environment. Broadband communications have become an increasingly essential tool for the management of successful farming enterprises allowing them to follow commodities markets, communicate and share data with distributors, customers, governmental agencies, and research institutions, gain access to potential new customers domestically and around the world, and utilize advanced data-driven farming techniques.

As early as 2006, John Deere started equipping construction fleets with telemetrically enabled mobile systems. Three years ago John Deere began equipping its large agricultural self-propelled vehicles with such systems which are enabled through JDLINK™ by which the machines communicate through the CMRS infrastructure. Increasingly, the ability of John Deere's agricultural equipment and systems to improve efficiency, yield, and smart resource use will depend on high speed broadband connections capable of enabling real-time machine-to-machine ("M2M") interaction and sharing of data with research institutions and governmental agencies. The "Internet of Things" in rural America will include not only smart meters and smart appliances, but also smart farming equipment and systems needed to drive local agriculture-dependent economies.

While John Deere can envision, design and build the farming equipment necessary for rural Iowa farms and communities to connect and compete on a global basis, there are still locations within Iowa that do not have high speed broadband services available to them that would allow them to fully take advantage of these tools. To address this digital divide, Mediacom and John Deere are partnering to propose an experiment designed to improve mobile broadband coverage in (at least) two rural Iowa counties, Audubon and Carroll. As the attached broadband coverage maps show, significant portions of these counties, to date, have been passed by with respect to the deployment of ubiquitous high speed broadband in excess of 3 Mbps/768 kbps. Mediacom and John Deere's experiment will test whether modest government assistance can help fill the broadband coverage gap in such areas to enable farmers to take full advantage of "smart" farming equipment and systems needed to ensure the future viability of local farms and to fuel the economic engine they provide in rural Iowa. Leveraging Mediacom's extensive pre-existing fiber footprint, the experiment will feature the extension of fiber through rural farm land to deploy a distributed network of wireless nodes that include (1) unlicensed WiFi transceivers providing Mediacom retail Internet access services and over-the-top Voice over Internet Protocol ("VoIP") and (2) small cells which will be collocated with the WiFi transceivers (using separate cards within the same transceivers) and be available for use by interested CMRS providers. These collocated wireless solutions will be used to achieve more robust broadband coverage,

speeds, and capacity within the eligible areas. Through the combination of extended fiber facilities, WiFi nodes, and small cells, Mediacom will replace existing CMRS service gaps with fiber-fed, wireless last mile voice and broadband capability for carrier, business and residential end user customers. These services will also benefit other potential users in the unserved areas who, by virtue of their proximity to the farmland that are the primary focus of the proposed experiments, will gain access to improved broadband services.

Mediacom and John Deere plan to coordinate with one or more CMRS licensees to bring voice and broadband capability via the small cells as they continue to refine the proposals set forth in this expression of interest. The small cells will utilize the same infrastructure Mediacom will use to provide WiFi Internet access and VoIP service. This experiment will demonstrate the added value of mobile coverage at broadband speeds over the complete expanse of farms – and not just to the curb or premises (*i.e.*, buildings) – and the potential for this business model to improve farm efficiency and production as well as provide the means to connect the residents and businesses in these underserved areas to the anchor institutions that serve them. In Audubon and Carroll Counties, the schools, libraries, health care facilities, airports, and other traditional community anchor institutions that support the unserved areas are largely outside the census blocks eligible for CAF funding. However, Mediacom, thanks to its existing fiber, will have the capability to serve these institutions. The capital needed to realize those connections is *not* part of the funding sought to support the proposed experiment, but the proposed experiment will enable residents and businesses to reach their institutions through such leveraging of existing Mediacom fiber. Critically, Mediacom and John Deere ask the Commission to consider the farms themselves that will receive coverage under the experiment as key anchor institutions in Audubon and Carroll counties, as they serve as an economic engine providing jobs, food, and more to the surrounding communities.

Fixed and mobile wireless broadband solutions are particularly appropriate for large farms because of the benefit to cover the farmland as a whole with connectivity (as explained herein). Moreover, farms typically consist of multiple buildings which farmers would like to have connected, many of which are often located far from the nearest public road. Wireless solutions are far more cost effective than bringing fiber to each building.

The deployment envisioned in the experiment is fully scalable. Mediacom anticipates that the equipment attached to its fiber infrastructure can be upgraded to take advantage of technology advances that enable greater throughput speeds and capacity for carrier, business and residential end users at variable price points. Further, Mediacom would be able, in successive phases and capital investment once the concept is demonstrated, be able to extend the high-speed wireless coverage beyond the initial areas of deployment indicated on the attached maps, and as described below, to reach adjacent and nearby unserved areas using the same model.

**Audubon County.** Mediacom and John Deere propose to conduct an experiment providing robust, scalable wireless broadband coverage in several eligible blocks north of the Town of Audubon and east of the village of Gray. See Exhibit 1, map provided by Connect Iowa showing approximate location of the four proposed small cells and fiber extensions. The deployment would leverage existing Mediacom fiber running from north to south in central Audubon County.

**Carroll County.** Mediacom and John Deere propose to provide scalable wireless broadband coverage to a number of eligible block locations Southeast and Southwest of the town

of Carroll, the county seat. The proposed census blocks in Carroll County where the experiments would take place are depicted on Exhibit 2 map provided by Connect Iowa showing approximate location of the nine proposed small cells and fiber extensions. The deployment would leverage existing Mediacom fiber running into the Town of Carroll from the south and connecting to an existing intersecting east-west Mediacom fiber build.

### **Need for and Benefits of the Proposed Deployment**

Vital economic (and now high-tech) activity occurs in rural areas where an ever larger amount of food is being grown to meet demand. In alignment with Governor Branstad's efforts to connect every Iowan, farmers are increasingly reliant on broadband to accomplish the goals of feeding, clothing and fueling the world. With 350 million acres of major agricultural cropland in U.S. production, 26 million of which is in Iowa, M2M communications for in-field communication leveraging cellular and other wireless connections is becoming an increasingly common practice, provided wireless coverage is available. Agriculture and rural communities are in need of new solutions for connectivity which the Commission's Order recognizes as it proposes to explore novel ways to bring broadband coverage to unserved rural areas through experiments supported by CAF funding.

The census blocks to which Mediacom and John Deere intend to bring high speed broadband have inadequate cell phone/wireless data coverage to allow these farming communities to take full advantage of the broadband revolution and advanced farming techniques such as those that John Deere's solutions make possible. This scenario is not uncommon in rural America. As noted above, the farming business itself is becoming more global and more complex, requiring the farmer to have access to broadband connections to facilitate data analytics and work with markets, customers and potential customers, suppliers, equipment manufacturers, and chains of distribution. But merely ensuring that a broadband solution extends to the buildings, public spaces, and roads, in these farming communities is not enough. One of the essentials for successful broadband deployment in agricultural areas is ubiquitous coverage over entire farms to allow advanced, connected agricultural equipment to operate as intended, thereby bringing a more complete range of benefits of modern science and technology to the farming enterprise.

The lack of a reliable wireless broadband connection in the field means that the full features and functions of the innovative equipment, sensors, and machinery are not available to the farmer. Consequently, without reliable mobile broadband that covers their entire farms, many farmers will simply forego advanced, precision farming techniques or investing in telemetrically enabled machinery. And those farmers that choose to deploy such techniques but do not enjoy ubiquitous wireless broadband coverage throughout their farmland will be operating in suboptimal conditions. This loss or absence of coverage over all or material parts of a farm inevitably negatively affects production which, given that farming is the staple of many rural communities, reverberates to the disadvantage of community at large.

Despite the benefits for farming enterprises, which are so important to many rural communities in Iowa and numerous other states, experience suggests that, absent some level of governmental support, the deployment of services that deliver higher speed wireless connections to agricultural areas in a way that maximizes the benefit to those types of communities may often be economically precluded in the most rural areas. The proposed



experiment will help demonstrate the value that comes from filling in wireless broadband coverage in these rural farming communities and opens the door to advanced applications .

To respond to this situation in the eligible blocks within Audubon and Carroll County, Mediacom and John Deere will first survey the cell/wireless coverage within those blocks. Where coverage is lacking, Mediacom and John Deere envision teaming with a CMRS provider or an independent deployer of small cell solutions to ensure deployment of small cells to fill in the coverage to provide last-mile solutions to farms, residences, and the farmland itself. Mediacom will provide fiber to the end points, leveraging its existing fiber that has previously been deployed to interconnect communities where it has existing residential and business customers for its broadband, video, and voice cable services.

The proposed deployment would have material benefits that go well beyond allowing farms to take advantage of the broadband revolution throughout their lands. Wireless broadband coverage and capacity as a whole would be improved in the area, including first responders and other government and public safety operations. The model that Mediacom and John Deere describe in this Expression of Interest, if funding is received to deploy it, will demonstrate whether and how the business case for such deployment in rural agricultural areas that do not yet have broadband at speeds equal to or greater than 3 Mbps/768 kbps can be improved. Once these high-speed connections are available, the farms, other businesses, and residents in these unserved areas will experience improved access to the anchor institutions that serve them, such as those in the towns of Audubon and Carroll.

Finally, anticipating the potential retirement of legacy PSTN services and facilities, the proposed experiment will create an opportunity to test how voice and broadband services might be provided in rural farming communities in a wireless world. Thus, this experiment would provide a test bed for examining the prospective technology transition in these rural areas. At the same time, the proposed project is flexible enough to also explore not only the conditions under which users in rural farming communities will prefer next generation broadband wireless services over narrowband wireline alternatives, but also whether a business model exists in such communities that could support additional deployment of fiber or other next generation wired technologies.

### **The Services That Would be Made Available by the Experiment**

In this experiment, two basic types of services would be deployed. First, Mediacom would provide retail Wi-Fi service to farms, small businesses and residences over the distributed antenna system at speeds up to approximately 50 Mbps down by 5 Mbps up for approximately \$30-80 per month. The Mediacom-provided retail WiFi would support Internet and broadband data services and voice services.

Mediacom also would make available wholesale fiber connections to small cell multi-user equipment for use by one or more CMRS providers and co-located with the WiFi transceivers. Thus, the deployment provides the opportunity for competition in the provision of wireless broadband and voice services. Interested CMRS providers would pay approximately \$5-7 per Mb per month. The specifics of the services to be provided will continue to be refined from the foregoing description, taking into account the rules adopted by the Commission to guide the consideration and selection of the rural broadband experiments.

## **Estimated Project Costs and the Request for CAF Funding**

As noted above, one of the preliminary steps that would have to occur before deployment of the proposed small cells is a survey by John Deere to identify coverage area gaps. However, based on a preliminary review of the coverage in the eligible areas within the two counties, John Deere and Mediacom estimate that approximately 4 and 9 small cells will be deployed in the unserved census blocks in Audubon and Carroll Counties, respectively.

To reach those small cells, Mediacom estimates that it will need to deploy 6 new fiber route miles in Audubon County and 19 new fiber route miles in Carroll County.

The WiFi transceivers, small cells, and the fiber extensions that Mediacom would make available to provide the backhaul and retail service to the small cell end points would allow Mediacom to reach fixed locations throughout the area covered by the experiments with high speed *wireless* broadband solutions.

Deployment of the facilities should take 60-90 days once funding is received, weather permitting.

At this time, Mediacom and John Deere anticipate that they would seek a one-time contribution to the capital costs of deployment, rather than continuing funding. Although the foregoing numbers for small cells/transceivers to be deployed, fiber route miles to be installed, and locations served as depicted in Exhibits 1 and 2 are subject to verification and refinement, Mediacom and John Deere project a high-level estimate for CAF experiment funding of approximately \$200,000 in Audubon County and \$600,000 in Carroll County. The remainder of the capital investment, estimated to be at least 20% of the total, would be provided by Mediacom or others. This amount of requested funding is less than what Mediacom and John Deere estimate the CAF Phase II forward looking cost model would provide to serve the foregoing number of locations in this census block over a ten-year period with an adjustment for the present value of money.

Mediacom and John Deere intend to have conversations with the state of Iowa and local governments, as well as research and educational institutions, within the two counties after filing this expression of interest. Mediacom and John Deere will work with them to identify ways in which the proposed experiments can be deployed more expeditiously, effectively, and efficiently with the assistance and cooperation of these governments and institutions. Mediacom and John Deere would plan to address the results of these discussions more fully in their formal proposal.

\* \* \*

Mediacom and John Deere will continue to refine their broadband experiment proposal based on discussions with possible partners and other local, state, or national organizations that could support the proposed experiment. They also participate in the development of the Commission's rules to cover the filing, review, and selection of rural broadband experiments supported by CAF Phase II funding. Mediacom and John Deere appreciate this opportunity to submit their expression of interest in receiving funding to deploy the business model described herein to further address the challenges of providing universal access to broadband to rural American farm lands and communities.

This experiment is expected to demonstrate that providers are willing and able to deliver services to rural farming communities with performance characteristics well in excess of the minimum standards that price cap carriers accepting model-based support are required to offer to

all locations in funded areas. Further, the proposed experiment is expected to rapidly deploy more complete geographic coverage than traditional models and providers have made available to farming enterprises for less support than that calculated by the forward-looking cost model. In short, the Mediacom-John Deere experiment would provide better broadband to rural farming communities more quickly and for less money.

Respectfully submitted,



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*Counsel for Mediacom Communications Corp.*



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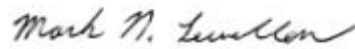
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